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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,732	12/16/2003	Atsushi Tokuda	740756-2684	3635

22204 7590 12/28/2006  
NIXON PEABODY, LLP  
401 9TH STREET, NW  
SUITE 900  
WASHINGTON, DC 20004-2128

EXAMINER
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GARRETT, DAWN L

ART UNIT	PAPER NUMBER
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1774

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/28/2006	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/735,732

Applicant(s)

TOKUDA ET AL.

Examiner

Dawn Garrett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

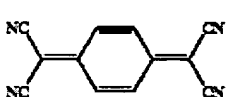
- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                           | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

**DETAILED ACTION*****Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 4, 2006 has been entered.

2. The amendment previously submitted October 30, 2006 has been entered. Claim 1 was amended. Claims 16-19 are canceled. Claims 1-15 are pending. The species under consideration remain as the following:

Polythiophene as the conjugate polymer and Formula (2) as the electron-accepting compound.



(2)

Claims 1-15 read upon the elected species and are currently under consideration.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-7 and 13-15 are again rejected under U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Heuer et al. (US 6,368,731). Heuer et al. teaches electroluminescent assemblies comprising a substrate, an anode, an electroluminescent element and a cathode (see abstract). The electroluminescent element contains one or more zones selected from the group consisting of hole injection zone, hole transport zone, electroluminescent zone, electron transport zone, and electron injection zone (see abstract).

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Heuer et al. teaches the hole injection zone is preferably comprised of an uncharged or cationic polythiophene (see col. 2, lines 32-56). The polythiophenes are used in the cationic form by treatment of neutral thiophenes with oxidizing agents (see col. 11, lines 17-21). The oxidized polythiophenes read upon the “conjugate polymer that ...has been oxidized” in claim 1. It does not appear that claim 1 requires the electron-accepting compound, such as formula (2) of claim 7, be present in the final product. Claim 1 only requires that the polythiophene is oxidized.

Heuer et al. appears to clearly disclose a final electroluminescent device product with an oxidized polythiophene as required. In the alternative that Heuer et al. is not considered sufficient to anticipate the final product, it would have been obvious to one of ordinary skill in the art to have selected an oxidized, cationic polythiophene for the hole injection zone, because Heuer et al. teaches that such a polythiophene is desirable as the hole injecting material. Claims 13 and 14 are considered to be product-by-process type claims and Heuer et al. is deemed to disclose the final product as required (see MPEP 2113).

5. Claims 8-11 are again rejected under 35 U.S.C. 103(a) as obvious over Heuer et al. (US 6,368,731) in view of Yang et al. (US 5,723,873). Heuer et al. is relied upon as set forth above. Heuer et al. teaches the zones or zones located between the hole injection zone and the cathode can also assume a plurality of functions, i.e. one zone can contain, for example, hole-injecting, hole-transporting, electroluminescent, electron-transporting and/or electron injecting substances (see col. 2, lines 63-67). Yang et al. teaches in analogous art “electron injection layer” and “hole blocking layer” are synonymous terms used in the art (see col. 16, line 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to have included an electron

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injection zone (hole blocking layer) in the Heuer et al. device, because Heuer et al. teaches such a functional zone may be included in the device.

6. Claim 12 is again rejected under 35 U.S.C. 103(a) as obvious over Heuer et al. (US 6,368,731) in view of Ara (US 6,613,454). Heuer et al. teaches inclusion of a light emitting material in the electroluminescent layer (see col. 21, lines 16-19 and col. 21, lines 47-53), but fails to disclose specifically a triplet-excitation type light emitting material. Ara teaches in analogous art the use of light emitting layers for electroluminescent devices exhibiting triplet-excitation (see col. 7, lines 38-45). It would have been obvious to one of ordinary skill in the art at the time of the invention to have selected a light emitting layer exhibiting triplet excitation as taught by Ara for the light emitting layer (electroluminescent layer) of the Heuer et al. device, because Ara teaches such a layer is known in the art and one would expect the light emitting layer material to be similarly useful as light emitting material in the Heuer et al. device.

7. Claims 1-7 and 13-15 are again rejected under 35 U.S.C. 103(a) as obvious over Heuer et al. (US 6,368,731) in view of Lidberg et al. Proceedings of SPIE - The International Society for Optical Engineering (1995), 2397 (Optoelectronic Integrated Circuit Materials, Physics, and Devices), p. 633-42. Heuer et al. teaches electroluminescent assemblies comprising a substrate, an anode, an electroluminescent element and a cathode (see abstract). The electroluminescent element contains one or more zones selected from the group consisting of hole injection zone, hole transport zone, electroluminescent zone, electron transport zone, and electron injection zone (see abstract). Heuer et al. teaches the hole injection zone is preferably comprised of an uncharged or cationic polythiophene (see col. 2, lines 32-56). The polythiophenes are used in the cationic form by treatment of neutral thiophenes with oxidizing agents (see col. 11, lines 17-21).

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The oxidized polythiophenes read upon the “conjugate polymer that ...has been oxidized” in claim 1. It does not appear that claim 1 requires the electron-accepting compound, such as formula (2) of claim 7, be present in the final product; however, in the event that the electron-accepting compound does become part of the conjugate polymer material, Lidberg et al. teaches polythiophenes doped with electron acceptors such as 7,7,8,8-tetracyanoquinodimethane as oxidized conductive polymers (see abstract, Figure 1, and page 635, first line of first paragraph under 2.1 heading). The oxidized polymers are taught to be applicable to applications such as light emitting diodes (see page 633, second and third lines of text under “Introduction” heading). It would have been obvious to one of ordinary skill in the art to have selected the oxidized polythiophenes taught by Lidberg et al. for the Heuer et al. device, because Lidberg teaches the polymers are suitable for a light emitting diode and Heuer et al. teaches oxidized polythiophenes are desirable as the hole injecting material of the Heuer et al. devices. Claims 13 and 14 are considered to be product-by-process type claims and Heuer et al. is deemed to disclose the final product as required (see MPEP 2113).

8. Claims 8-11 are again rejected under 35 U.S.C. 103(a) as obvious over Heuer et al. (US 6,368,731) in view of Lidberg et al. Proceedings of SPIE - The International Society for Optical Engineering (1995), 2397 (Optoelectronic Integrated Circuit Materials, Physics, and Devices), p. 633-42 in further view of Yang et al. (US 5,723,873). Heuer et al. and Lidberg are relied upon as set forth above. Heuer et al. teaches the zone or zones located between the hole injection zone and the cathode can also assume a plurality of functions, i.e. one zone can contain, for example, hole-injecting, hole-transporting, electroluminescent, electron-transporting and/or electron injecting substances (see col. 2, lines 63-67). Yang et al. teaches in analogous art “electron

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injection layer” and “hole blocking layer” are synonymous terms used in the art (see col. 16, line 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to have included an electron injection zone (hole blocking layer) in the Heuer et al. device, because Heuer et al. teaches such a functional zone may be included in the device.

9. Claim 12 is again rejected under 35 U.S.C. 103(a) as obvious over Heuer et al. (US 6,368,731) in view of Lidberg et al. Proceedings of SPIE - The International Society for Optical Engineering (1995), 2397 (Optoelectronic Integrated Circuit Materials, Physics, and Devices), p. 633-42 in further view of Ara (US 6,613,454). Heuer et al. and Lidberg are relied upon as set forth above. Heuer et al. teaches inclusion of a light emitting material in the electroluminescent layer (see col. 21, lines 16-19 and col. 21, lines 47-53), but fails to disclose specifically a triplet-excitation type light emitting material. Ara teaches in analogous art the use of light emitting layers for electroluminescent devices exhibiting triplet-excitation (see col. 7, lines 38-45). It would have been obvious to one of ordinary skill in the art at the time of the invention to have selected a light emitting layer exhibiting triplet excitation as taught by Ara for the light emitting layer (electroluminescent layer) of the Heuer et al. device, because Ara teaches such a layer is known in the art and one would expect the light emitting layer material to be similarly useful as light emitting material in the Heuer et al. device.

#### ***Response to Arguments***

10. Applicant's arguments filed October 30, 2006 have been fully considered but they are not persuasive.

Applicant argues neither Heuer et al. nor Lidberg et al. teach or suggest each and every feature in the pending claims. Applicant appears to argue that oxidation by an electron-

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accepting compound results in a different oxidized product than if the oxidation agent is something other than the claimed electron-accepting agents. Applicant agrees Heuer describes treatment of the polythiophenes with oxidizing agents (see top of page 7 in the remarks).

Applicant has not conclusively shown that the oxidized polythiophenes claimed by Heuer are different from their oxidized polythiophenes. Per M.P.E.P. § 2145, the arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geiseler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997). Also, recitation of a newly disclosed property does not distinguish over a reference disclosure of the article or composition claims. *General Electric v. Jewe Incandescent Lamp Co.*, 67 USPQ 155. *Titanium Metal Corp. v. Banner*, 227 USPQ 773. Applicant bears responsibility for proving that reference composition does not possess the characteristics recited in the claims. *In re Fritzgerald*, 205 USPQ 597, *In re Best*, 195 USPQ 430. The examiner further submits that the claims do not expressly require the electron-accepting compound be present in the final device product.

Applicant asserts the examiner “contends that it is obvious that an electron-accepting organic compound is used as an oxidizing agent.” The examiner disagrees that the rejection over the Heuer et al. reference alone does not set forth electron-accepting organic compounds. The argument on page 7, first full paragraph, is not clearly understood. An obviousness rejection has been made over Heuer because the reference teaches polythiophenes that have been oxidized.

Lidberg et al. is used in an alternative rejection if the electron-accepting compounds are indeed present in the final product. Lidberg et al. is relied upon to teach polythiophenes doped with electron acceptors such as 7,7,8,8-tetracyanoquinodimethane as oxidized conductive



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polymers (see abstract, Figure 1, and page 635, first line of first paragraph under 2.1 heading).

[the electron acceptor is the same as claimed by applicant and accordingly is considered to result in oxidation as required]. The oxidized polymers are taught to be applicable to applications such

as light emitting diodes (see page 633, second and third lines of text under "Introduction"

heading). It would have been obvious to one of ordinary skill in the art to have selected the oxidized polythiophenes taught by Lidberg et al. for the Heuer et al. device, because Lidberg teaches the polymers are suitable for a light emitting diode and Heuer et al. teaches oxidized polythiophenes are desirable specifically as the hole injecting material of the Heuer et al.

devices. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The rejection in view of Lidberg is respectfully maintained.

### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached at (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Dawn Garrett  
Primary Examiner  
Art Unit 1774

December 20, 2006